

Date: Sat, 29 Jan 94 04:30:34 PST
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #13
To: Ham-Homebrew

Ham-Homebrew Digest Sat, 29 Jan 94 Volume 94 : Issue 13

Today's Topics:

 Antenna pre-amp design. Help!
 Antenna Tuner Project Advice Needed
 Crazy VFO
 digital readout using freq counter?
 Electronics parts stores in DC area
 IBM-PC Shareware for PCB Photo work
 T-368 exciter successfully transistorized!
 want to build reciever for 108-137Mhz
 XTAL source needed

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Wed, 26 Jan 1994 00:18:52 GMT
From: nic.hookup.net!paladin.american.edu!europa.eng.gtefsd.com!emory!rsiatl!
ke4zv!gary@tcgould.tn.cornell.edu
Subject: Antenna pre-amp design. Help!
To: ham-homebrew@ucsd.edu

In article <1994Jan25.191202.1@ntuvax.ntu.ac.sg> asirene@ntuvax.ntu.ac.sg writes:
> Can anyone here give me some advice on building an antenna pre-amp
>for working 4 - 24 mHz? Should I go broadband or switched bands? What about
>pre-filtering?

Normally, a preamp is unnecessary for the HF spectrum. The usual problem
is inadequate rejection of strong signals. However, if you've got an old
deaf receiver, like say a S-28, a preamp may help. You definitely want to

use a selective amplifier with good sharp tuned circuits. A triple ganged circuit would be a good idea. Otherwise your preamp will operate in overload most of the time.

> What are the advantages of designing one around bi-polar or mosfet?
> Can anyone contribute some tried and tested circuits for me to construct?

FETs would be the more popular choice. You can tap up on the selective circuits for lighter loading, hence higher Q, with less problems with a FET. The old MPF102 would work for this type of circuit, but it can be driven rather easily into overload. A power VMOS FET like the VMP-4 may be a better choice. Run about 100 ma of standing current.

In looking through my collection of ARRL Handbooks, I don't find a HF preamp until I go back to the 1962 edition. They have one using a 6AK5 pentode. This should give you an idea of the apparent lack of need for such circuits with more modern equipment.

If the problem is that you are using a small voltage probe antenna, a FET configured as an emitter follower mounted directly on the antenna may be used to transform the signal impedance down to something more to the liking of the receiver and coax. Again run enough standing current to avoid overload problems.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

Date: Sat, 29 Jan 1994 06:31:25 GMT
From: dog.ee.lbl.gov!agate!iat.holonet.net!rohrwerk@network.ucsd.edu
Subject: Antenna Tuner Project Advice Needed
To: ham-homebrew@ucsd.edu

pea@wri.com (Bruce Pea) writes:

> I'm getting ready to put a dipole up and use ladderline to
> feed it. I'm going to need an antenna tuner so I can tune
> this wire across 160-10m.

> I thought building a tuner would be a nice winter project.
> Do any of you have a favorite tuner project you would like

"A *Balanced* Balanced Antenna Tuner", February 1990 QST, page 28. Or

some variation on the idea of putting a 50 ohm balun on the INPUT of the tuner, not trying to use a balun in the output to the line.

The above is a balanced L network -- with the inductance split between the legs of the line, and the capacitance across the output. You then feed this with a current balun, like a large coil of coax, or the W2DU choke balun, or even a good broadband transformer.

Another variation on this idea is the QRP Transmatch for Balanced Lines found in my 1988 ARRL Handbook (maybe later editions too). He doesn't split the inductance, but does put the balun on the input, and keeps the matching network floating.

In any case, avoid putting a toroid balun on the output when you're going to feed a non resonant, reactive load such as a dipole used on all bands. They are not designed for this, despite their almost universal use in commercial tuners. Another QST article, I can't remember where, documents how badly they work under reactive loads.

I use two rotary inductors, a variable capacitor, and a coax balun consisting of about 30 feet RG58 on a five-inch PVC pipe. Works great -- solved a LOT of RF problems in the shack with a balanced open wire on most HF bands.

John K0JD

Date: 28 Jan 94 23:39:26 GMT
From: sdd.hp.com!col.hp.com!srngenprp!alanb@hplabs.hp.com
Subject: Crazy VFO
To: ham-homebrew@ucsd.edu

Roberto Valfredini (robertov@flash.ATC.Olivetti.Com) wrote:

: I build a VFO ...
: The Vfo was performing good , after warming up for 20 minutes
: it was moving in a range of max 20 Hz.
: The frequency from power-on increase of 90-100 Hz. ...

: Now the problem is that if I put the vfo inside its metal box
: to make it usable and connecting the box itself to the ground of the
: vfo (as it should be) etc etc ... In a few words putting it in its
: final state then it starts to become instable increasing or decreasing
: its frequency of more than 800 or more Hz and trying to drift also after
: more than 1 hour from power-up.

Is the oscillator's tank inductor a toroid or an air-wound solenoid

(cylinder)? Air-wound solenoids radiate a large magnetic field which can couple into nearby metallic objects, ruining the coil Q and stability. The smaller the metal box, the greater the problem. Steel is especially bad. If you are using an air-wound coil, try using a larger box made of aluminum or copper-clad board soldered together.

AL N1AL

Date: Wed, 26 Jan 1994 01:17:03 GMT
From: gatekeeper.us.oracle.com!sgiblab!barrnet.net!netnews.synoptics.com!news@decwrl.dec.com
Subject: digital readout using freq counter?
To: ham-homebrew@ucsd.edu

In article 1214@auratek.COM, epacyna@auratek.COM (Edward Pacyna) writes:
>
>The measurement principle is simple: the frequency of the VFO is counted and
>the frequency of the IF is added or subtracted from the VFO count

**** Here's another way. You can use pre-settable counters, and instead of presetting them to zero, you preset them to the two's complement of the IF frequency. That way, the count goes up from (negative-of-the-if-freq) through zero up to the actual frequency of interest. This assumes high-side injection of course.

If you have a unit with different schemes for transmit and receive, then you just arrange to preset the counter to one value for xmit, another for receive. The scheme could even be expanded with diodes for bandswitching.

- Jerry Kaidor, KF6VB

Date: Thu, 27 Jan 1994 13:43:11 GMT
From: unix.sri.com!headwall.Stanford.EDU!agate!library.ucla.edu!europa.eng.gtefsd.com!howland.reston.ans.net!vixen.cso.uiuc.edu!uchinews!cs.umd.edu!ra!usenet@hplabs.hp.com
Subject: Electronics parts stores in DC area
To: ham-homebrew@ucsd.edu

I'm interested in starting a few electronics projects, but need to find a good source of electronics parts. Now don't tell me to go to Radio Shack! Their selection is *very* limited. For example, I need a toroid core to wind a transformer, but Radio Shack doesn't carry anything like that.

and cost \$35 from Fair Radio Sales at the time.

If you're not acquainted with the unit, it has a 1.5-3 MHz PT0, a mechanical digital readout, and doubler stages to cover 1.5-3, 3-6, 6-12, and 12-24 MHz (they say 12-20, but the dial reads to 24; probably reflects the ratings of the companion PA). It's built like a tank, and the tuned circuits in the multipliers track the PT0 in typically elegant Collins fashion.

Lately I have been building up Rick Campbell's R2 receiver, and have had a 5 watt transmitter for some time, built while I was trying to see if Rick was going to provide kits! When it became apparent that he was barely able to keep up with circuit board requests, I made my own and went forward. Gradually, I realized that the old T368 would be a marvelous general-coverage VFO -- it's built like a tank, far more stable than I could ever construct.

Suggestions for transistorizing the PT0 were made in Feb. 1989 QST Technical Correspondence. I adapted those ideas. so far, so good.

I was on my own on the multiplier stages. I chose to wire in JFET's, using the locally-available NTE312. One stage had a weird low-frequency oscillation, but I cured it with a series RC network. It worked! Then just broadband output stages to boost the power up for those hungry diode-ring mixers.

While I was at it, I added a tuning diode to the PT0 for RIT and CW offset. I have two pots (found matching knobs at a local surplus house!) and a switch added to the front panel, and a transistor switching arrangement to select the correct pot when the transmitter is keyed. Works well with full QSK.

Does this trip anybody's trigger? Will happily provide more details if interested -- not that I've done everything absolutely right, of course, but like any experimenter, I just kept fiddling till it worked.

John K0JD

Date: 26 Jan 1994 22:51:31 GMT
From: news.ingr.com!b11!cmack.b11.ingr.com!dlkerl@uunet.uu.net
Subject: want to build reciever for 108-137Mhz
To: ham-homebrew@ucsd.edu

Ramsey sells a kit for an aviation-band receiver. It's in the 25-30 dollar range.

Model AR-1
Ramsey Electronics
793 Canning Parkway
Victor, NY 14564
(716) 924-4560

The tuning is touchy - you might try a 10-turn pot to make it more manageable.
It only covers 118-135 Mhz - you could tune the L0 to cover a different
range.

Dan Kerl
dlkerl@cmack.b11.ingr.com

I am not affiliated with Ramsey.

Date: Wed, 26 Jan 1994 20:12:26 GMT
From: mvb.saic.com!unogate!news.service.uci.edu!usc!elroy.jpl.nasa.gov!sdd.hp.com!
col.hp.com!srngenprp!alanb@network.ucsd.edu
Subject: XTAL source needed
To: ham-homebrew@ucsd.edu

Mike Stansberry (jms@col.hp.com) wrote:

: I order my crystals from either International Crystal Mfg. (ICM),
: 1-800-426-9825, or Jan Crystals, 1-800-526-9825 (just noticed the
: similarity between those numbers, ...

9825 = "XTAL"

AL N1AL

Date: 27 Jan 1994 14:29:54 GMT
From: sdd.hp.com!spool.mu.edu!howland.reston.ans.net!usc!elroy.jpl.nasa.gov!
newncar!csn!col.hp.com!jms@network.ucsd.edu
To: ham-homebrew@ucsd.edu

References <2i63gm\$pfid@hp-col.col.hp.com>, <CK96sr.Lrq@srngenprp.sr.hp.com>,
<2i6pk8\$3ko@usenet.INS.CWRU.Edu>csn
Subject : Re: XTAL source needed

Stephen C. Trier (trier@slc6.ins.cwru.edu) wrote:

: Mike Stansberry (jms@col.hp.com) wrote:
: : I order my crystals from either International Crystal Mfg. (ICM),
: : 1-800-426-9825, or Jan Crystals, 1-800-526-9825 (just noticed the
: : similarity between those numbers, ...

: In article <CK96sr.Lrq@srgenprp.sr.hp.com>, Alan Bloom <alanb@sr.hp.com> wrote:
: >9825 = "XTAL"

: It can go a step farther. 426 = "ICM" and 526 = "JAN", so the numbers
: spell out 1-800-JAN-XTAL and 1-800-ICM-XTAL. I wonder if the companies
: realized the similarity of their mnemonics when they chose them?

: Stephen

Yeah, I figured out the letter to number conversion after I made that
first posting.

Mike, K0TER

End of Ham-Homebrew Digest V94 #13
